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09/497,107	02/03/2000	Jayne Brady	10457ROUS03U	7103

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NORTEL NETWORKS LIMITED
P. O. BOX 3511, STATION C
OTTAWA, ON K1Y 4H7
CANADA

EXAMINER	
HA, YVONNE QUY M	
ART UNIT	PAPER NUMBER
2697	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/497,107	Applicant(s) BRADY ET AL.
	Examiner Yvonne Q. Ha	Art Unit 2697

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-9, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman (US Patent 6,011,802) in view of Nakamura et al. (US Patent 6,385,213).

Referring to claim 1, Norman discloses assembly of STM-N frame comprising the steps of receiving a hierarchically multiplexed administrative unit AU-n comprising a payload and an AU-n pointer (col.5; lines 8-36; Figure 2) and hierarchically multiplexing said TU-n into the STM-N frame (col.6; lines 52-62; Figure 2) and AU-n pointer provides the beginning of said payload with respect to the STM-N frame (col.5; lines 24-27). Norman does not expressly disclose the converting said AU-n to a tributary unit TU-n. However, Nakamura discloses the conversion of AU-n payload to TU-n payload including the corresponding pointers (col.3; lines 23-29). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Norman's assembly of STM-N frame with Nakamura's conversion of AU-n to TU-n. One of ordinary skill in the art would have been motivated to combine the conversion techniques because of the potential benefits of facilitating conversions of payload data between SDH and SONET by the ability of demultiplexing STM-N frame having AU-n into TU-n.

Referring to claim 2, Norman discloses SDH interface that performs AU pointer and TU pointer translations are performed based on TU payload (col.15; lines 13-21) and a gateway converter that handles payload conversions between VTG and TUG. Norman does not expressly disclose the translation of AU payload into a TU payload in the gateway converter or SDH interface. However, Nakamura discloses the conversion of AU-n payload to TU-n payload including the corresponding pointers (col.3; lines 23-29). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Norman's pointer translation with Nakamura conversion of AU-n payload to TU-n payload. One of ordinary skill in the art would have been motivated to combine the AU to TU payload conversion techniques as Norman's disclosed converter which supports TUG (i.e. TU payload) as the combination allows for AU payload (converted to TU payload) to be handled by the gateway converter.

Referring to claim 3 and 5, Norman discloses an STM frame hierarchically multiplexing comprises the steps of mapping TU-n into a tributary unit group TUG-n (col.7; lines 5-6), multiplexing TUG-n into a higher order TUG-k (col.7; lines 20-21), mapping said VC-k into a TU-k by adding a POH field corresponding to a hierarchical level k (col.7; lines 2-3), mapping said TUG-k into a higher order virtual container VC-k of same hierarchical level (col.7; lines 8-9), aligning said higher order virtual container into a AU-k by providing a AU-k pointer (col.7; lines 9-10), mapping said AU-k into a administrative unit group AUG-k (col.7; line 11) and assembling said frame structure from said AUG-k (col.7; line 12).

Referring to claim 6, Norman discloses the hierarchically multiplexed STM-4 when n=3 and N=4 (col.7; lines 7-15; Figure 3; references VC-3, AU-3).

Referring to claim 7 and 9, Norman discloses the hierarchically multiplexing method which comprises of the steps mapping TU into a tributary unit group TUG of same hierarchical level (Figure 3; references TU-3, TUG-3), hierarchically multiplexing of lower level TUG into a higher level TUG (Figure 3; references TUG-2 and TUG-3), mapping of higher level TUG into same level virtual container VC (Figure 3; references TUG-3 and VC-4), aligning said higher order virtual container into a AU-5 by providing a AU-5 pointer(col.5; lines 24-27), mapping said AU into a administrative unit group AUG (Figure 3; references AU-4 and AUG-4) and assembling said frame structure from the AUG group (Figure 3; references AUG and STM-N); mapping TUG into a higher order virtual container VC of same hierarchical level (it is inherent to map TUG into a higher order virtual container VC of same hierarchical level.).

Referring to claim 8, Norman discloses the hierarchically multiplexed STM-4 when n=4 and N=4 (col.7; lines 7-15; Figure 3; references VC-4, AU-4).

Referring to claim 11 and 12, Norman discloses assembly of STM-N frame comprising the steps of receiving a hierarchically multiplexed administrative unit AU-n comprising a payload and an AU-n pointer (col.5; lines 8-36; Figure 2) and SDH interface that performs AU pointer and TU pointer translations are performed based on TU payload (col.15; lines 13-21) and a gateway converter that handles payload conversions between VTG and TUG. Norman does not expressly disclose the translation of AU payload into a TU payload in the gateway converter or SDH interface and the reduction of AU pointers of very high-speed synchronous transport signal STM-N. However, Nakamura discloses the conversion of AU-n payload to TU-n payload including the corresponding pointers (col.3; lines 23-29) but does not expressly disclose the reduction of AU pointers of very high-speed synchronous transport signal STM-N. At the time of

the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Norman's pointer translation with Nakamura conversion of AU-n payload to TU-n payload. One of ordinary skill in the art would have been motivated to combine the AU to TU payload conversion techniques as Norman's converter which supports TUG (i.e. TU payload) as the combination allows for AU payload (converted to TU payload) to be handled by the gateway converter. The conversion capability further motivates one of ordinary skill in art to include lower hierarchy level (i.e. fine granularity) AU which is translated into TU that is subsequently hierarchy multiplexed into higher level AU which reduces AU pointers of very high speed synchronous transport signal STM-N. Higher level (i.e. coarse granularity) AU pointer is added to the higher level AU payload that forms a higher-level STM-N.

Referring to claims 13 and 14, Norman discloses the structure of STM-N (i.e. hierarchy capability inclusive of STM-4 STM-16, STM-64, and STM-256) by multiplexing multiples of AUG to achieve the desired STM level (col.6; lines 61-62, Figure 3; references AUG and STM-N).

3. Claim 4 is rejected under 35 U.S.C 103(a) as being unpatentable over Norman (US Patent 6,011,802) in view of Nakamura et al. (US Patent 6,385,213) in further view of Muller (US Patent 5,465,252).

Referring to claim 4, Norman and Nakamura disclose all aspects of the claimed invention but failed to teach the use of fixed stuff bits. However, Muller discloses the potential presence of fixed stuff bits in the TU-n payload (col.5; lines 9-10). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply stuff bits for synchronizing to the local switching network clock.

4. Claim 10 is rejected under 35 U.S.C 103(a) as being unpatentable over Norman (US Patent 6,011,802) in view of Kivi-Mannila et al. (US Patent 5,539,750).

Referring to claim 10, Norman discloses the assembly of SDH signal (i.e. STM frame). Norman does not expressly disclose the use of concatenated payload and the corresponding pointers. However, Kivi-Mannila discloses the use of concatenated AU payload and corresponding AU pointer that are based on concatenated TU payloads and TU pointers (col.6; lines 36-48). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Norman's assembly of STM-N frame with Kivi-Mannila use of concatenated payloads and corresponding payloads. One of ordinary skill in the art would have been motivated to combine the concatenation techniques to be capable of transmitting a digital broadband signal having a bit rate of an intermediate hierarchy level.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Heiles et al. (US Patent 5,579,310) discloses method for switching through digital signals
- Mueller (US Patent 5,168,494) discloses method for transmitting a digital broadband signal in a tributary unit concatenation via a network of a synchronous digital multiplex hierarchy)
- Sugawara (US Patent 5,555,248) discloses tandem connection maintenance
- Scheffel et al. (US Patent 5,428,612) discloses synchronous transmission system

- Oksanen et al. (US Patent 5,666,351) discloses method for disassembling and assembling frame structures containing pointers
- Sihvola et al. (US Patent 5,724,342) discloses method for receiving a signal in a synchronous digital telecommunications system

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvonne Q. Ha whose telephone number is 703-305-8392. The examiner can normally be reached on Monday-Friday 7a.m.-4p.m. Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3988 for regular communications and 703-305-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

YQH
April 4, 2003

RICKY NGO
PRIMARY EXAMINER